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#### SENECIO PLANT NAMED 'SUNSENERAPI'

#### BOTANICAL/COMMERCIAL CLASSIFICATION

Senecio cruentus x Senecio heritieri/Senecio Plant VARIETAL DENOMINATION

cv. 'Sunsenerapi'

#### BACKGROUND OF THE VARIETY

The present invention relates to a new and distinct variety of *Senecio* plant named 'Sunsenerapi'. 'Sunsenerapi' is a distinct and unique variety, which is a dome-shaped plant with abundant branching, light purplish pink flowers, and a long blooming term.

There are many varieties of *Senecio L*. cultivated in the world. There are many cultivated varieties with flowers of a single color of white, pink, red, blue or violet. Some varieties have marginal variegation with off color parts.

The female parent used in the crossing of 'Sunsenerapi' is a clone of our own breeding line, Senecio cruentus, '8S-84e' (not patented in the United States), which is a compact, dome-shaped plant, 16 cm in height. The stems are thick, 8.0 mm in diameter, with no anthocyanin coloration. The leaf is in a serrated heart form and moderate yellow green. The leaf size is medium, approximately 12.0 cm long and approximately 12.5 cm wide. The capitulum is single flowered and has white ray florets with white disk florets having no marginal variegation. '8S-84e' has some scent.

The pollen parent used in the crossing of 'Sunsenerapi' is our breeding line (unnamed plant), Senecio heritieri (not patented or sold in the United States), which was originally introduced from England. Senecio heritieri is a high and dome-shaped plant, approximately 26 cm in height with abundant branching. Stems are approximately 5.1 mm in diameter, with no anthocyanin coloration. The leaf is in a serrated heart form and light yellowish green. The leaf size

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is small, approximately 5.5 cm long, approximately 6.3 cm wide. The capitulum is single flowered, having strong purple ray florets with vague white parts and strong reddish purple disk florets. Senecio heritieri has no scent.

The controlled crossing with a plant of Senecio cruentus '8S-84e' and a plant of Senecio heritieri was conducted at Omori-cho, Yokaichi-shi, Shiga, Japan in February, 1999.

Seedlings from this crossing were grown since September, 1999.

Four strains were selected in January 2000 among them in view of flower color and earliness. After multiplication by tissue culture, the botanical characteristics of the selected new strains were tested in pots since September 2000, using parent varieties and 'Sunsenere' (U.S. Plant Patent Number 12162,) and 'Midget' (not patented in the United States) for comparison, since 2000. As a result, one strain was selected. It is confirmed that the instant plant reproduces true to type in successive generations of asexual reproduction.

This new variety of *Senecio* plant was named 'Sunsenerapi' (Senecio cruentus x Senecio heritieri).

The new variety of *Senecio* plant was asexually reproduced by cuttings at Omori-cho, Yokaichi-shi, Shiga-ken, Japan.

Senecio cruentus, '8S-84e', and Senecio heritieri are presently maintained at Omori-cho, Yokaichi-shi, Shiga-ken, Japan.

In the following descriptions, the color-coding is in accordance with the Horticultural Colour Chart of the Royal Horticultural Society, London, England (R.H.S. Colour Chart).

The botanical characteristics of the female parent plant Senecio cruentus, '8S-84e', used in the crossing of 'Sunsenerapi' are as follows.

#### Plant:

Growth habit - Dwarf compact Height - Approximately 16 cm

### Stem:

Thickness - Approximately 8.0 mm

Color - Moderate yellowish green (near R.H.S. No. 139C)

Anthocyanin coloration - Absent

Branching - Fair

Pubescence - Sparse

Internode length at the middle of main stem -

Approximately 0.5 cm

Leaf:

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10 Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

15 Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Fair

Length - Approximately 12.0 cm

Width - Approximately 12.5 cm

Diameter of petiole - Approximately 5.0 mm

Length of petiole - Approximately 5.5 cm

Color of upper surface - Moderate yellow green (near

R.H.S. No.137C)

Color of reverse surface - Grayish yellow green (near

25 R.H.S. No.138B)

Anthocyanin coloration of reverse surface - Absent

Pubescence of upper surface - Present

Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White

30 Flower cluster (Gathering of corymbs):

Shape of flower cluster - Flat

Diameter of flower cluster - Approximately 20 cm

Height of flower cluster - Approximately 8 cm

# Capitula Transected shape of capitula - Flat Diameter of capitula - Approximately 5.5 cm Diameter of disk entire capitula - Approximately 1.2 cm Color of ray floret - White (near R.H.S. No.155D) 5 Marginal variegation - Absent Color of disk floret - White (near R.H.S. No.155D) Ray floret length - Approximately 2.1 cm Ray floret width - Approximately 1.0 cm 10 Shape of ray floret - Elliptical Lengthwise warp of ray floret - Flat Concavity of ray floret tip - Present Shape of ray floret tip - Rounded Number of ray floret - Approximately 13 15 ' Number of disk floret - Approximately 105 Diameter of pedicel of the first capitulum -Approximately 1.6 mm Length of pedicel of the first capitulum - Approximately 2.4 cm 20 Number of capitula per plant - approximately 75 Scent - Present Phyllaries: Length - Approximately 2.2 mm Color - Moderate yellow green (near R.H.S. No.139C) 25 Anthocyanin coloration - Absent Pistil: Color - Light yellow (near R.H.S. No.11B) Number - 1 Type - Style branches truncate (i.e., the top of the 30 style is separated in two and the shape of the top is truncated) Stamen: Color - Brilliant yellow (near R.H.S. No.12B)

Type - 5 anthers are connate, with separated filaments

Blooming period - January (Sowing in August)

Hardiness:

Cold - Good

Rain - Good

Heat - Good

Resistance:

Disease - Good

Insect - Good

The botanical characteristics of the male parent plant

Senecio heritieri used in the crossing of 'Sunsenerapi' are as follows.

Plant:

Growth habit - Dwarf compact

Height - Approximately 26 cm

15 Stem:

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Thickness - Approximately 5.1 mm

Color - Very pale green (near R.H.S. No.128D)

Anthocyanin coloration - Absent

Branching - Abundant

20 Type of primary lateral shoot - Branch from every node

Pubescence - Dense

Internode length at the middle of main stem -

Approximately 0.8 cm

Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

30 Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Weak

Length - Approximately 5.5 cm

Width - Approximately 6.3 cm Diameter of petiole - Approximately 4.2 mm Length of petiole - Approximately 7.5 cm Color of upper surface - Light yellowish green (near R.H.S. No.136D) 5 Color of reverse surface - Very pale green (near R.H.S. Anthocyanin coloration of reverse surface - Absent Pubescence of upper surface - Dense 10 Pubescence of reverse surface - Dense Color of pubescence of reverse surface - White Flower cluster (Gathering of corymbs): Shape of flower cluster - Uneven Diameter of flower cluster - Approximately 18 cm 15 Height of flower cluster - Approximately 15 cm Capitula: Transected shape of capitula - Flat Diameter of capitula - Approximately 4.8 cm Diameter of entire disk - Approximately 0.9 cm 20 Color of ray floret - Strong purple (near R.H.S. No.81B) Marginal variegation - Present Diameter of off color part - Approximately 1.3 cm Border of marginal variegation - Vague Color of disk floret - Strong reddish purple (near 25 R.H.S.C.C. No.72A) Ray floret length - Approximately 2.2 cm Ray floret width - Approximately 0.4 cm Shape of ray floret - Rectangular Lengthwise warp of ray floret - Flat 30 Concavity of ray floret tip - Present Shape of ray floret tip - Acute Number of ray floret - Approximately 13 Number of disk floret - Approximately 110 Diameter of pedicel of the capitulum - Approximately 1.2 mm

Length of pedicel of the capitulum - Approximately 2.5 cm Number of capitula per plant - Approximately 35 Scent - Absent

5 Phyllaries:

Length - Approximately 3.1 mm

Color - Very pale green (near R.H.S. No.128D)

Anthocyanin coloration - Present

Pistil:

10 Color - Strong reddish purple (near R.H.S. No.72A)

Number - 1

Type - Style branches truncate (i.e., the top of the style is separated in two and the shape of the top is truncated)

15 Stamen:

Color - Strong reddish purple (near R.H.S. No.72A)

Type - 5 anthers are connate, with separated filaments Blooming period - End of January (Sowing in August)

Hardiness:

20 Cold - Good

Rain - Good

Heat - Good

Resistance:

Disease - Good

25 Insect - Good

The botanical characteristics of a similar variety 'Sunsenere' (Senecio cruentus x Senecio heritieri) which was patented in the United States, used for examination as a comparison variety are as follows.

30 Plant:

Growth habit - Semi-dwarf erect Height - Approximately 25 cm

#### Stem:

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Thickness - Approximately 5.0 mm

Color - Moderate yellowish green (near R.H.S. No.139C)

Anthocyanin coloration - Present in parts of stem, e.g., can be seen at the part of peduncle.

Degree of anthocyanin coloration - It is light grayish olive (near R.H.S. No.197A) at the part wherein anthocyanin is present, but it is moderate yellowish green (near R.H.S. No.138C) at the part where anthocyanin is absent.

Branching - Abundant, i.e., approximately 9 to 11 branches

Type of primary lateral shoot - Branch from every node Pubescence - Sparse

Internode length at the middle of main stem -

Approximately 1.0 cm

## Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - The maximum depth of concavity measured from the average convexity peak height is approximately 7 mm.

Type of convexity - Acute

Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Weak

Length - Approximately 8.6 cm

Width - Approximately 10.3 cm

Diameter of petiole - Approximately 3.2 mm

Length of petiole - Approximately 9.0 cm

Color of upper surface - Moderate yellow green (near R.H.S. No.137C)

Color of reverse surface - Moderate yellow green (near R.H.S. No.138C)

	Anthocyanin coloration of reverse surface - Absent
	Pubescence of upper surface - Dense
	Pubescence of reverse surface - Dense
	Color of pubescence of reverse surface - White
5	Flower cluster (Gathering of corymbs):
	Shape of flower cluster - Uneven
	Diameter of flower cluster - Approximately 34 cm
	Height of flower cluster - Approximately 22 cm
	Capitula
10	Transected shape of capitula - Flat
	Diameter of capitula - Approximately 6.4 cm
	Diameter of entire disk - Approximately 1.3 cm
	Color of ray floret - Vivid reddish purple (near R.H.S.
	No.78A)
15	Marginal variegation - Absent
	Color of disk floret - Deep reddish purple (near R.H.S.
	No.80A)
	Ray floret length - Approximately 2.6 cm
	Ray floret width - Approximately 0.8 cm
20	Shape of ray floret - Rectangular
	Lengthwise warp of ray floret - Flat
	Concavity of ray floret tip - Present
	Shape of ray floret tip - Acute
	Number of ray floret - Approximately 15-16
25	Number of disk floret - Approximately 130
	Diameter of pedicel of the first capitulum -
	Approximately 1.2 mm
	Length of pedicel of the first capitulum - Approximately
	3.3 cm
30	Number of capitula per plant - Approximately 88
	Scent - Present
	Phyllaries:
	Length - Approximately 1.2 mm
	Color - Very pale green (near R.H.S. No.130D)

Anthocyanin coloration - Absent Pistil:

Color - Vivid reddish purple (near R.H.S. No.80A)

Number - 1

5 Type - Style branches truncate (i.e., the top of the style is separated in two and the shape of the top is truncated)

Stamen:

Color - Vivid reddish purple (near R.H.S. No.80A)

10 Type - 5 anthers are connate, with separated filaments
Blooming period - Start at the end of November or early
December (cutting in July)

Hardiness:

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Cold - Good

Rain - Good

Heat - Good

Resistance:

Disease - Good

Insect - Good

The botanical characteristics of a similar variety 'Midget', used for examination as a comparison variety are as follows.

Plant:

Growth habit - Dwarf

25 Height - Approximately 14 cm

Stem:

Thickness - Approximately 5.6 mm

Color - Moderate yellow green (near R.H.S.C.C. No. 139C)

Anthocyanin coloration - Present

30 Degree of anthocyanin coloration - Medium

Branching - Fair

Pubescence - Dense

Internode length at the middle of main stem -

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Approximately 0.5 cm Leaf:

Whole shape - Heart form with a swollen basal part, which is notched at where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

Apex shape - Acute

Base shape - Cordate

10 Degree of Undulation - Fair

Length - Approximately 13.9 cm

Width - Approximately 10.3 cm

Diameter of petiole - Approximately 4.2 mm

Length of petiole - Approximately 4.7 cm

15 Color of upper surface - Grayish yellow green (near R.H.S. No.138A)

Color of reverse surface - Grayish yellow green (near R.H.S. No.138B)

Anthocyanin coloration of reverse surface - Absent

Pubescence of upper surface - Present

Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White

Flower cluster (Gathering corymbs):

Shape of flower cluster - Flat

Diameter of flower cluster - Approximately 22 cm

Height of flower cluster - Approximately 8 cm

Capitula:

Transected shape of capitula - Fairly closed

Diameter of capitula - Approximately 3.2 cm

Diameter of entire disk - Approximately 0.8 cm

Color of ray floret - Vivid reddish purple (near R.H.S. No.74A)

Marginal variegation - Absent

Color of disk floret - Strong reddish purple (near R.H.S.

Heat - Good

# No.72A) Ray floret length - Approximately 1.5 cm Ray floret width - Approximately 0.8 cm Shape of ray floret - Elliptical 5 Lengthwise warp of ray floret - Flat Concavity of ray floret tip - Present Shape of ray floret tip - Acute Number of ray floret - Approximately 13 Number of disk floret - Approximately 86 10 Diameter of pedicel of the first capitulum -Approximately 1.5 mm Length of pedicel of the first capitulum - Approximately 2.5 cm Number of capitula per plant - Approximately 180 15 Scent - Present Phyllaries: Length - Approximately 2.2 mm Color - Moderate yellow green (near R.H.S. No.139C) Anthocyanin coloration - Absent 20 Pistil: Color - Strong reddish purple (near R.H.S. No.72A) Number - 1 Type - Style branches truncate (i.e., the top of the style is separated in two and the shape of the top is 25 truncated) Stamen: Color - Strong reddish purple (near R.H.S. No.72A) Type - 5 anthers are connate, with separated filaments Blooming period - January (Sowing in August) 30 Hardiness: Cold - Good Rain - Good

#### Resistance:

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Disease - Good Insect - Good

#### SUMMARY OF THE NEW VARIETY

'Sunsenerapi' is a dome-shaped plant with an average height of approximately 31.8 cm in the blooming period. There is a branch from every node and branching is abundant, i.e., approximately 9 to 11 branches. The stem is approximately 4.8 mm in diameter with light pubescences.

The leaves are small, approximately 13.9 cm long, approximately 9.7 cm wide. The leaves are shaped in a serrated heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole. The leaf color is moderate olive green, with no anthocyanin coloration on the reverse side. Pubescence on both sides of leaf is dense. The petiole is approximately 10.0 cm long and approximately 3.4 mm in diameter.

The new variety has large flower clusters which are high and uneven in shape (i.e., the locations of the individual capitula forming the cluster are uneven or not flat). A flower cluster means a gathering of capitula in a plant. The capitulum is single flowered with no marginal variegation. The capitulum has a flat transected shape (i.e., when the capitulum opens, ray florets are flat when viewed from the The capitula is approximately 6.7 cm in diameter, while the entire disk is approximately 1.3 cm in diameter. The ray florets are approximately 3.1 cm long and approximately 0.8 cm wide. The color of the ray floret is light purplish pink (near R.H.S. No.75C), while the color of the disk florets are strong reddish purple (near R.H.S. No.77B). One capitulum has approximately 13 ray florets and approximately 167 disk florets. A ray floret has a pistil, but no stamen. A disk floret is tubular and has a pistil and

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a stamen formed by 5 connate anthers with separated filaments. There are approximately 155 capitula per plant. The length of phyllary is approximately 2.0 mm. The phyllary has no anthocyanin coloration. The pedicel is approximately 3.9 cm long and approximately 1.2 mm in diameter. The flowers have some scent.

After cutting in July, it flowers at the end of the January in Japan. The blooming continues from January to May, if under appropriate control. By temperatures around 15°C, the individual bloom lasts two weeks. The flower buds grow one after another from the axil. The flower is not self-cleaning because florets remain attached in a wilted and dry state as the flower fully matures.

The new variety has moderate cold and heat tolerance. The new variety does not die at around 0°C, but when frost occurs the cells can be necrosed resulting in the death of the plant. Usually, Senecio cruentus has a tendency of slightly reduced growth in a hot season, whereas the new variety has no problem in growing in the hot season.

The fertility of the new variety is low. Generally, Senecio genus plants have high fertility (i.e., bear many seeds per flower). In contrast, 'Sunsenerapi' bears no seed or very few seeds per capitulum. When no seed is formed, there is a part corresponding to a seed coat, which remains in an immature state, i.e., without embryo and endosperm inside the immature seed coat.

The new variety, 'Sunsenerapi', differs from similar varieties, 'Sunsenere' and 'Midget', of the *Senecio* genus and from parent varieties *Senecio heritieri* and '8S-84e' in the following points.

1. 'Sunsenerapi' is a high type plant, approximately 31.8 cm in height. 'Sunsenere' is a high type plant, approximately 25 cm in height. 'Midget' is a compact type

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plant, approximately 14 cm in height. The pollen parent Senecio heritieri is a semi-compact type plant, approximately 26 cm in height and female plant '8S-84e' is a compact type plant, approximately 16 cm in height.

- 2. The capitulum of 'Sunsenerapi' has light purplish pink ray florets, strong reddish purple disk florets and no marginal variegation, while 'Sunsenere' has vivid reddish purple ray florets, deep reddish purple disk florets and no marginal variegation. 'Midget' has vivid reddish purple ray florets, strong reddish purple disk florets and no marginal variegation. The female parent '8S-84e' has white ray florets, white disk florets and no marginal variegation. The pollen parent Senecio heritieri has strong purple ray florets, strong reddish purple disk florets and white marginal part.
- 3. The petiole length of 'Sunsenerapi' is longer than that of 'Sunsenere' or 'Midget'.
- 4. 'Sunsenerapi' has more pubescence of stems than 'Sunsenere' and fewer than 'Midget'.
- 5. The blooming term of 'Sunsenerapi' is longer than 'Midget'.
- 6. The fertility of 'Sunsenerapi' is lower than 'Midget'.

The plant height and flower color are most distinctive characteristics of this new variety, 'Sunsenerapi'.

### BRIEF DESCRIPTION OF THE DRAWING

Fig.1 is a photograph giving a partial view of the new variety of Senecio plant named 'Sunsenerapi' planted in a pot.

Fig.2 is a photograph of capitula of the new variety of Senecio plant named 'Sunsenerapi'.

#### 30 DESCRIPTION OF THE NEW VARIETY

The botanical characteristics of this new and distinct variety of *Senecio* plant named 'Sunsenerapi' at an age of 7

months after cutting in July are as follows (i.e., these botanical characteristics were observed in January of the year following the cutting with the new variety planted in a 15 cm pot and grown in a greenhouse, the lowest temperature of which was controlled at  $12^{\circ}$ C in winter).

#### Plant:

Growth habit - Semi-dwarf erect

Height - Approximately 31.8 cm

Spread - Approximately 35 cm

#### 10 Stem:

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Lateral stem length - Approximately 12.0 cm

Lateral stem diameter - Approximately 3.5 mm

Color - Very pale green (near R.H.S. No.130D)

Anthocyanin coloration - Absent

Branching - Abundant, i.e., approximately 9 to 11 branches

Type of primary lateral shoot - Branch from every node Pubescence - Medium

Internode length at the middle of the main stem -

Approximately 1.8 cm

#### Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - The maximum depth of concavity measured from the average convexity peak height is approximately 5 mm.

Type of convexity - Acute

Apex shape - Acute

Base shape - Cordate

Margin - Palmately lobed, crenate and weakly undulated

Length - Approximately 13.9 cm

Width - Approximately 9.7 cm

Diameter of petiole - Approximately 3.4 mm Length of petiole - Approximately 10.0 cm Petiole color - Near R.H.S. 145B Color of upper surface - Moderate olive green (near 5 R.H.S. No.146A) Color of reverse surface - Moderate yellow green (near R.H.S. No.147D) Anthocyanin coloration of reverse surface - Absent Pubescence of upper surface - Sparse 10 Pubescence of reverse surface - Dense Color of pubescence of reverse surface - White Flower cluster (Gathering of corymbs): Shape of flower cluster - Round Diameter of flower cluster - Approximately 34 cm 15 Height of flower cluster - Approximately 22 cm Capitula: Transected shape of capitula - Flat Diameter of capitula - Approximately 6.7 cm Diameter of entire disk - Approximately 1.3 cm 20 Color of ray floret (upper) - Light purplish pink (near R.H.S. No.75C); color of ray floret (lower) - near R.H.S. 76C Marginal variegation - Absent Color of disk floret - Strong reddish purple (near R.H.S. No.77B) 25 Ray floret length - Approximately 3.1 cm Ray floret width - Approximately 0.8 cm Ray floret margin - Entire Base shape of ray floret - Obtuse Shape of ray floret - Long oblong 30 Lengthwise warp of ray floret - Flat Concavity of ray floret tip - Present Shape of ray floret tip - Acute Number of ray floret - Approximately 13

Number of disk floret - Approximately 167

Diameter of pedicel of the first capitulum -Approximately 1.2 mm Length of pedicel of the first capitulum - Approximately 3.9 cm Color - Near R.H.S. 152B 5 Number of capitula per plant - Approximately 155 Scent - Present Disk floret: Length - Approximately 8.5 mm 10 Width - Approximately 2.0 mm Shape - Tubular trumpet shape. Phyllaries: Number of phyllaries - Approximately 14 Length - Approximately 2.0 mm 15 Color - Moderate yellow green (near R.H.S. No.139C) Anthocyanin coloration - Absent Shape - Lanceolate Apex - Acute Margin - Entire 20 Base - Fused Bud: Diameter - Approximately 6.0 mm Length - Approximately 5.5 mm Shape - Globose 25 Color - Near R.H.S. 144B Pistil: Color - Vivid purple (near R.H.S. No.82A) Number - 1 per ray and disk floret Type - Style branches truncate (i.e., the top of the 30 style is separated in two and the shape of the top is truncated) Stamen: Color - Dark yellow (near R.H.S. No.153B) Type - A disk floret has 5 connate anthers with

separated filaments. Ray floret has no stamen.

Amount of pollen - Scarce

Pollen color - Near R.H.S. 21C

Blooming period - Start at the end of January (cutting in July)

Time to flower - Approximately 6 months

### Hardiness:

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Cold - Good

Rain - Good

10 Heat - Good

#### Resistance:

Disease - Good

Insect - Good

The new variety and Senecio cruentus have similar

resistance to powdery mildew, leaf spot, aphid, whitefly, and thrips. The new variety, 'Sunsenerapi', is a tall type plant and most suitable for flower potting.

This new and distinct variety of *Senecio* plant named 'Sunsenerapi' was asexually reproduced by cutting at Omoricho, Yokaichi-shi, Shiga-ken, Japan and the homogeneity and stability thereof were confirmed.